paper conveying means for conveying the print paper in a sub-scanning direction;

pattern printing means for printing, with at least one head, a test pattern including predetermined pattern elements;

pattern detecting means, mounted on said carriage, for detecting the pattern elements of the test pattern printed on the print paper by said printing means;

binary conversion means for binarizing an output of said pattern detecting means;

position detecting means for detecting a position of the carriage in said main scanning direction; and

calculating means for moving said carriage to detect the pattern elements of the test pattern with said pattern detecting means, for detecting a print position of the pattern elements based on a detection result of said position detecting means when a rising and/or falling edge of a binary signal obtained by said binary conversion means is generated, and for calculating a mounting deviation amount of each head in said main scanning direction,

wherein said position detecting means comprises low-resolution position detecting means based on a linear scale provided on a movement path of said carriage and high-resolution position detecting means for detecting a high-resolution position more finely than a minimum unit determined by a resolution of said low-resolution position detecting means such that said low-resolution position detecting means and said high resolution

position detection means are combined with each other to precisely detect the positions of the pattern elements.

6. (Amended) An image forming device that forms an image on a print paper in an ink jet recording method with a plurality of heads, comprising:

main scanning direction moving means for moving a carriage in a main scanning direction, said carriage having said plurality of heads mounted thereon;

paper conveying means for conveying the print paper in a sub-scanning direction;

pattern printing means for printing, with at least one head, a test pattern including predetermined pattern elements;

pattern detecting means, mounted on said carriage, for detecting the pattern elements of the test pattern printed on the print paper by said printing means;

binary conversion means for binarizing an output of said pattern detecting means;

position detecting means for detecting a position of the carriage in said main scanning direction; and

calculating means for moving said carriage to detect the pattern elements of the test pattern with said pattern detecting means, for detecting a print position of the pattern elements based on a detection result of said position detecting means when a rising and/or falling edge of a binary signal obtained by said binary conversion means is generated, and for calculating a

mounting deviation amount of each head in said main scanning direction,

wherein said position detecting means comprises low-resolution position detecting means based on a linear scale provided on a movement path of said carriage and high-resolution position detecting means for detecting a position more finely than a minimum unit determined by a resolution of said low-resolution position detecting means such that said low-resolution position detecting means and said high resolution position detection means are combined with each other to precisely detect the positions of the pattern elements,

wherein, for each head, said test pattern is at least one vertical bar extending in the sub-scanning direction substantially perpendicular to said main scanning direction, and

wherein said pattern printing means causes each of different portions of a single head to print a plurality of dots sequentially in a plurality of passes, said plurality of dots constituting a portion of said vertical bar.

11. (Twice Amended) A method, for use on an image forming device with a linear scale provided on a carriage movement path, for detecting a deviation between a print position actually printed on a print paper by a head and a print target position, said method comprising the steps of:

providing a timer for detecting a high-resolution position within a unit interval determined by a resolution of said linear scale;

printing a predetermined print element at the target

position on the print paper by the head mounted on a carriage

that scans in a main scanning direction;

detecting said print element with a sensor mounted on said

carriage;

when the print element is detected by said sensor, detecting

a low-resolution position based on said linear scale and,

detecting a high-resolution position within the unit interval

with said timer; and

obtaining the deviation between a position detected by

combining said low-resolution position detection with said high-

resolution position detection and said print target position.

REMARKS

Reconsideration is respectfully requested.

Claims 1-17 are pending in this application. Claims 1, 6

and 11 are amended.

Claims 11 and 12 are objected to based on certain

informalities considered by the Examiner. Applicant thanks the

Examiner for suggested wording that would be acceptable, and

amends claim 11 with attention to the concerns of the Examiner.

In view of these amendments, claims 11 and 12 are believed

acceptable.

Claims 1-5, 11 and 13-15 are rejected under 35 U.S.C.

§102(e) as allegedly being anticipated by Ikeda (U.S. 6,390,588).

Applicant submits herewith a translation of the Japanese priority

document to perfect the priority claim, and relies on the